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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,311	03/21/2001	Jae-Yoel Kim	678-638 (P9799)	4839

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EXAMINER	
DOOLEY, MATTHEW C	

ART UNIT	PAPER NUMBER
2133	10

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/814,311	KIM ET AL.	
	Examiner	Art Unit	
	Matthew C. Dooley	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment/Arguments

1. This action is a response to the amendments and arguments put forth by the applicant in paper 9, received 01/09/04.

Specification

2. Amendments to the specification received 01/09/04, have been reviewed by the Examiner and overcome the prior objections. Moreover, the amendments to the specification do not constitute addition of new matter.

Drawings

3. Replacement formal figure 6 was received on 01/09/04. The drawing is acceptable and overcomes the prior specification objections.

Response to Arguments

4. Applicant's arguments, see paper 9, filed 01/09/04, with respect to claims 1-15 have been fully considered and are persuasive. The previous rejection of claims 1-15 in view of the APA, Molnar et al., U.S. 5,691,922, and Razoumov et al., U.S. 6,614,850 has been withdrawn. However, new grounds of rejection of claims 1-15, and newly added claims 16-17 are put forth below.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-3, 7-16, and 18 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

Claims 1 and 7 teach to a code signal without structure that fails to provide a tangible process, machine, manufacture, or composition of matter. The claimed material constitutes an arrangement of data bits to be read or outputted, and as such, does not constitute patentable subject matter as required under 35 U.S.C. 101. Furthermore, claims 2-3, 8-16, and 18 further limit the unpatentable independent claims 1 and 14 and, as such, are too rejected under the aforementioned reasoning.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 17 recites the limitation "the method of claim 4" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 4 is teaching to an apparatus, and circuitry comprising said apparatus. As such, claim 17 is rejected there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (APA) in view of Molnar et al., U.S. 5,691,922, and Sarkar et al., U.S. 6,671,851.

As per claim 1:

The Applicant discloses that it is known in the art to utilize an (8,3) encoding system, however fails to teach to puncturing unnecessary bits of said code to realize a (r,k) simplex code wherein ($r = 2^k - 1$) (Fig.1). Molnar teaches to an encoding method that encodes input information and then punctures unnecessary symbols (Fig.4b,4c). It would have been obvious for one of ordinary skill in the art to utilize the encoding method of Molnar in conjunction with the encoding system in figure 1 of the APA because the introduction of a puncturing circuit in the encoder allows for unnecessary bits in the (8,3) codeword to be punctured, thus allowing more data to be sent over an equal sized channel. However, this combination that does include the repetition of the code symbols (APA: pg.4: 16), fails to address the problem that punctured codes may exceed the original code length N. Sarkar teaches to a puncturing system that punctures code symbols after repetition for the case when the number of code symbols does not match the data frame (Fig.8; Col.9: 37-49). It would have been obvious for one of ordinary skill in the art to make use of the puncturing method disclosed by Sarkar in view of the aforementioned combination of the APA and Molnar because Sarkar allows for a technique of rate matching that would allow for standardized data frames to be transmitted by the system of the APA and Molnar, while still allowing for the maximized bandwidth usage disclosed above.

As per claim 2:

Sarkar teaches to uniform distribution of the punctured symbols across the repeated code symbols according to a predetermined pattern (Col.10: 15-19).

As per claim 3:

Sarkar teaches to puncturing symbols in a specified frame (Col.10: 15-19).

As per claim 4:

Claim 4 is the corresponding apparatus claim to rejected claim 1. As such, analogous reasoning to that used above in the rejection of claim 1 is further applied in the rejection of claim 4.

As per claim 5:

Claim 5 is the corresponding apparatus claim to rejected claim 2. As such, analogous reasoning to that used above in the rejection of claim 2 is further applied in the rejection of claim 5.

As per claim 6:

Claim 6 is the corresponding apparatus claim to rejected claim 3. As such, analogous reasoning to that used above in the rejection of claim 3 is further applied in the rejection of claim 6.

As per claim 7:

The Applicant discloses that it is known in the art to utilize an (8,3) encoding system, however fails to teach to puncturing unnecessary bits of said code to realize a (7,3) simplex code. Molnar teaches to an encoding method that encodes input information and then punctures unnecessary symbols (Fig.4b,4c). It would have been obvious for one of ordinary skill in the art to utilize the encoding method of Molnar in conjunction with the encoding system in figure 1 of the APA because the introduction of a puncturing circuit in the encoder allows for unnecessary bits in the (8,3) codeword to be punctured, thus allowing more data to be sent over an equal sized channel. However, this

combination that does include the repetition of the code symbols (APA: pg.4: 16), fails to address the problem that punctured codes may exceed the original code length N. Sarkar teaches to a puncturing system that punctures code symbols after repetition for the case when the number of code symbols does not match the data frame (Fig.8; Col.9: 37-49). It would have been obvious for one of ordinary skill in the art to make use of the puncturing method disclosed by Sarkar in view of the aforementioned combination of the APA and Molnar because Sarkar allows for a technique of rate matching that would allow for standardized data frames to be transmitted by the system of the APA and Molnar, while still allowing for the maximized bandwidth usage disclosed above.

As per claim 8:

Sarkar teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.10: 15-19). Therefore, for the case where there total repeated codes divided by the encoded information equals one, the system of Sarkar punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 6 bits.

As per claim 9:

Sarkar teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.10: 15-19). Therefore, for the case where there total repeated codes divided by the encoded information equals two, the system of Sarkar punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 5 bits.

As per claim 10:

Sarkar teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.10: 15-19). Therefore, for the case where there total repeated codes divided by the encoded information equals three, the system of Sarkar punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 4 bits. Moreover, the methods of Sarkar include puncturing specific symbols in a specified frame (Col.10: 15-19).

As per claim 11:

Sarkar teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.10: 15-19). Therefore, for the case where there total repeated codes divided by the encoded information equals four, the system of Sarkar punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 3 bits. Moreover, the methods of Sarkar include puncturing specific symbols in a specified frame (Col.10: 15-19).

As per claim 12:

Sarkar teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.10: 15-19).Therefore, for the case where there total repeated codes divided by the encoded information equals five, the system of Sarkar punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 2 bits.

As per claim 13:

Sarkar teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.10: 15-19).Therefore, for the case

where there total repeated codes divided by the encoded information equals six, the system of Sarkar punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 1 bit.

As per claim 14:

Sarkar teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.10: 15-19). Therefore, for the case where there total repeated codes divided by the encoded information equals three, the system of Sarkar punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 4 bits. Moreover, the methods of Sarkar include puncturing specific symbols of repeated code symbols (Col.10: 15-19).

As per claim 15:

Sarkar teaches to puncturing bits in a data sequence for the case when the number of code symbols does not match the data frame (Col.10: 15-19). Therefore, for the case where there total repeated codes divided by the encoded information equals four, the system of Sarkar punctures the amount of bits to make the total number of code symbols fit the capacity of the frame, in this case 3 bits. Moreover, the methods of Sarkar include puncturing specific symbols of repeated code symbols (Col.10: 15-19).

As per claim 16:

The encoding of the k-bit sequence of data in the system of Sarkar indicates the data rate of a mobile station (Fig.1-4, 8; Col.8: 61 – Col.9: 17).

As per claim 17:

The encoding of the k-bit sequence of data in the system of Sarkar indicates the data rate of a mobile station (Fig.1-4, 8; Col.8: 61 – Col.9: 17).

As per claim 18:

The encoding of the k-bit sequence of data in the system of Sarkar indicates the data rate of a mobile station (Fig.1-4, 8; Col.8: 61 – Col.9: 17).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Moulsley U.S. 6,671,851

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt Dooley at (703) 306-5538, M-F 8:30-5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached at (703) 305-9595. The fax phone number for the organization where this application is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner AU 2133
03/12/04

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